KEEP THE HEAT: THERMAL IMAGING GUIDE

How to use the cameras

1. Download the FLIR ONE app from your phone's app store. If you have any problems, check your device is compatible:
    - You will need to have iOS 17 or higher, or Android 13 or higher.
    - For Huawei phones, go to www.bit.ly/huaweicompatibility.

FLIR ONE PRO:

iPhones 15 and newer will need an adaptor (or use the Flir One Edge instead). Android devices need a USB-C charging port (if you have a micro-USB port, you will need an adapter).

2. Charge the camera and power bank with the provided cables and charge your phone.
3. Open the app, swipe through the information and accept the terms and conditions.
4. It asks which camera you are using, select 'FLIR ONE' and allow the requested permissions.
5. Plug the camera into your phone's charging port so the camera is facing away from you. You may need to remove your phone case or wind the connector higher. If the camera is wobbly, put an elastic band over the top of your phone on either side of the camera.
6. Press the button on the camera once to turn it on. Wait a bit and then your phone will show the thermal imaging.
7. To take a photo, press the big grey button at the bottom of the screen.
8. Allow the app access to your photo library to automatically save photos.
9. Turn the camera off by pressing the power button so the light disappears.

(For a more in-depth guide go to: www.bit.ly/flironeproguide)

FLIR ONE EDGE (PRO):

(For a quick video, go to: www.bit.ly/flironeedgevideo)

2. Charge the camera with the provided cable and charge your phone.
3. Open the app, swipe through the information and accept the terms and conditions.
4. It now asks which camera you are using, select 'FLIR ONE Edge'
5. Allow the requested permissions.
6. Clamp the camera to the back of your phone by pulling out the extending arm, or place the camera close to your phone.
7. Hold the power button for 3 seconds and the lights should flash. Allow your phone to find the device (up to 60 secs), press connect, and allow it to join the network.
8. To take a photo, press the big grey button at the bottom of the screen.
9. Allow the app access to your photo library to automatically save photos.
10. Turn the camera off by pressing the power button so the lights turn off. This will also disconnect it from your phone.

Camera top tips

- Practise on your own homes first
- To access the gallery, press the button in the top right. In image details at the bottom of each photo, you can add a note to each image and see its location. To view the image without the thermal colours, press the 'DC' button.
- If you delete a thermal image from your phone's photo library, it will also remove it from your FLIR One app's gallery and vice versa. The camera won't store any photos.
- For more information and guides, in the app click on the 3 lines in the top left corner, then 'Help', then 'How to use', and select the camera you are using.
- Sometimes the temperature difference can be explained by a building feature, e.g. a water pipe.

FLIR ONE PRO:

- Don't cover the thermal camera with your hand! It is sometimes easiest to hold your phone upside down to avoid this.
- Open the app and then plug in the device, not the other way round.

FLIR ONE EDGE (PRO):

- The camera will automatically turn off if inactive for more than 7 minutes.
- The camera automatically calibrates and refreshes the image periodically which makes a clicking sound.

When to do the thermal surveys

- There needs to be a difference of 10 degrees between the inside and outside temperatures.
- The central heating needs to have been on high for a couple of hours beforehand.
- If it has been sunny all day, you need to make sure it's been at least 1.5 hours since sunset.
- Avoid surveying after rain as it will distort the images.
- Survey in the early morning or in the evening.

How to plan your surveys

- Allow around 20-30 minutes per house.
- Advertise the surveys in advance (resources to help: www.bit.ly/3zITU20)
- Make sure you survey the homes with the residents. Their knowledge of their house will inform the survey, and they can learn what they need to improve. You can also survey the back of their home and inside too if they want.
- You could target homes with a low EPC rating (Energy Performance Certificate). You can use www.gov.uk/find-energy-certificate to find homes in your area.
- Have a few back up evenings as you may have to reschedule due to poor conditions.

What the colours show

- The thermal camera detects heat coming from an object, so it shows you where heat is escaping, inside and outside a home.
- The brighter the colour, the hotter it is (Orange/yellow/white colours = warm)
- The darker the blue, the colder the area (Dark blue/purple colours = cold)
- From outside a home, you want to see cold blue colours that mean the heating is being kept inside the home. Reds, whites, and warmer colours = heat leaking out.
- From inside a home, you want to see warm yellow colours which means the cold air isn't coming in and the heating isn't escaping out. Darker, bluer spots = cool air coming in.
- It's best to avoid including the sky in the image as it can cause big colour changes. Instead, point the camera at an area of wall and window.

Examples of where to take photos

External

- Joins in the building work (such as extensions)
- Around windows and doors, e.g. with curtains opens and then closed (cold edges will show draughts)
- Roofs and walls
- Is the cavity wall insulation patchy or missing?

Internal

- Upstairs ceilings: if you can see light or bright blue lines, then these are the joists, and it suggests the loft insulation is inadequate.
- Hot water tanks/boilers: is the insulation sufficient? Does the heat leak outside?
- Doors and windows: are there dark blue areas around the frames?

For thermal interpretation guides, scan the QR codes or type the links into your search bar:

Outside of a home:

www.bit.ly/thermalinterpretation

Inside a home:

www.bit.ly/4hfcCQ4